I. Amendments

A. Amendments to the Claims

Listing of the Claims

This listing of claims replaces all prior versions and listings of claims in the application:

Please amend claims 21-24, 27-28, 30-48, and add new claim 50 as follows:

1-20 (cancelled)

21. (currently amended) A method for determining a first distance along a movement path on a surface over which an optical tracking device is moved by a user, comprising:

projecting, from a coherent light source, and along the movement path, a beam of coherent light as a first light beam incident on the surface;

generating, on the surface and along the movement path, a plurality of light interference speckles resulting from ~~as a result of~~ the first light beam and a second light beam representing at least portions of the first light beam reflected from the surface interfering with one another, the speckles having at least a first average spatial dimension;

sensing the plurality of speckles with a plurality of light sensors arranged in an areal pattern as the optical tracking device is moved along the movement path, each of the light sensors having a second spatial dimension that is less than the first average spatial dimension of the speckles, each of the light sensors further being configured to generate a first signal when one of the plurality of speckles is disposed therebeneath and detected thereby and to generate a

second signal when one of the plurality of speckles is disposed therebeneath and not detected thereby, and

determining, on the basis of the plurality of first and second signals~~sensed speckles~~, the first distance.

22. (currently amended) The method of claim 21, further comprising determining, on the basis of the first and second signals generated by the plurality of light sensors as the device is moved over the surface ~~sensed speckles~~, a direction in which the optical tracking device moves along the movement path.

23. (currently amended) The method of claim 21, further comprising comparing the ~~a~~ plurality of first and second signals ~~output signals corresponding to at least some of the plurality of sensors~~ to determine the first distance.

24. (currently amended) The method of claim 21, further comprising comparing the ~~a~~ plurality of first and second ~~output~~ signals ~~corresponding to at least some of the plurality of sensors~~ to determine a direction in which the optical tracking device moves along the movement path.

25. (previously presented) The method of claim 21, further comprising sensing at least one characteristic of the speckles.

26. (previously presented) The method of claim 25, wherein the at least one characteristic is selected from the group consisting of speckle length, speckle width, speckle dimension, an edge of a speckle, a distance between speckles, a distance between leading edges of speckles, and a distance between trailing edges of speckles.

27. (currently amended) The method of claim 21, further comprising configuring the coherent light source and the plurality of light sensors such that the first average spatial dimensions ~~corresponding to the interference pattern~~ of the speckles may be predicted with a high degree of confidence.

28. (currently amended) The method of claim 21, further comprising configuring the coherent light source and the plurality of light sensors such that the ~~an~~ first average spatial dimension of the speckles ~~size~~ is given approximately by the equation:

$$\lambda \cdot (R/d),$$

where λ is a wavelength of the light emitted by the coherent light source, R is a second distance the coherent light source is from the surface, and d is a diameter of the coherent light beam.

29. (previously presented) The method of claim 21, further comprising counting the number of speckles along the optical path to determine the first distance.

30. (currently amended) The method of claim 21, wherein the first average spatial dimension of ~~size of~~ the ~~generated~~ speckles is selected form the group consisting of about 10 microns and ~~ranges~~ ranging between about 50 microns and about 100 microns.

31. (currently amended) The method of claim 21, wherein the ~~average size of the generated speckles is approximately 10 microns.~~ plurality of light sensors comprises at least five light sensors.

32. (currently amended) The method of claim 21, wherein ~~at least one of~~ the first signal is a high signal and the second signal is a low signal ~~is generated in response to at least some of the plurality of sensors detecting a speckle~~.

33. (currently amended) The method of claim 21, wherein ~~at least one of a~~ the second signal is a high signal and the first signal is a low signal ~~is generated in response to at least some of the plurality of sensors detecting the absence of a speckle~~.

34. (currently amended) A device for determining a first distance along a movement path on a surface over which an optical tracking device is moved by a user, comprising:

a coherent light source configured to project a first coherent light beam along the movement path and onto the surface as an incident light beam, the coherent light source being configured in respect of the surface to produce a plurality of light interference speckles resulting from the first light beam and a second light representing at least portions of the first light beam reflected form the surface interfering with one another, the speckles having a first average spatial dimension;

a plurality of light sensors arranged in an areal pattern and operatively associated with the coherent light source and the processor, each of the plurality of light sensors having a second spatial dimension that is less than the first average spatial dimension of the speckles, each of the light sensors further being configured to generate a first signal when one of the plurality of speckles is detected thereby and to generate a second signal when one of the plurality of speckles is not detected thereby ~~and configured to sense at least a portion of the incident light beam reflected from the surface as a second reflected light beam~~, and

a processor configured to determine the first distance on the basis of the plurality of first and second signals generated by the plurality of light sensors as the device is moved over the surface.

~~wherein the coherent light source is configured to generate a plurality of light interference speckles on the surface along the movement path as a result of the first light beam and the second light beam interfering with one another, the plurality of light sensors is configured to detect the speckles along the movement path, and the processor is configured to determine the first distance on the basis of the sensed speckles.~~

35. (currently amended) The device of claim 34, wherein the processor is further configured~~further comprising means for determining~~ to determine, on the basis of the plurality of first and second signals generated by the plurality of light sensors as the device is moved over the surface~~the sensed speckles~~, a direction in which the optical tracking device moves along the movement path.

36. (currently amended) The device of claim 34, wherein the processor is further configured to compare ~~further comprising means for comparing~~ the a plurality of first and second output signals~~corresponding to at least some of the plurality of sensors~~ to determine at least one of the first distance and a first direction.

37. (currently amended) The device of claim 34, wherein the processor is further configured to determine at least ~~plurality of sensors further comprise means for sensing at least~~ one characteristic of the speckles.

38. (currently amended) The device of claim ~~34~~37, wherein the at least one characteristic is selected from the group consisting of speckle length, speckle width, speckle dimensions, an edge of a speckle, distance between speckles,

distance between leading edges of speckles, and distance between trailing edges of speckles.

39. (currently amended) The device of claim 34, wherein the coherent light source and the plurality of sensors are configured such that the first average spatial dimension of the ~~dimensions corresponding to the interference pattern~~ speckles may be predicted with a high degree of confidence.

40. (currently amended) The device of claim 34, wherein the coherent light source and the plurality of sensors are configured such that the first ~~an~~ average speckle dimension ~~size~~ is given approximately by the equation:

$$\lambda \cdot (R/d),$$

where λ is a wavelength of the light emitted by the coherent light source, R is a second distance the coherent light source is from the surface, and d is a diameter of the coherent light beam.

41. (currently amended) The device of claim 34, wherein the processor is further configured to count the number of speckles along the optical path to determine the first distance.

42. (currently amended) The device of claim 34, wherein the first average spatial dimension ~~size~~ of the ~~generated~~ speckles is selected from the group consisting of about 10 microns and ranging ~~ranges~~ between about 50 microns and about 100 microns.

43. (currently amended) The device of claim 34, wherein the ~~average size of the generated speckles is approximately 10 microns~~ plurality of light sensors comprises at least five light sensors.

44. (currently amended) The device of claim 34, wherein ~~further comprising means for generating at least one of~~ the first signal is a high signal and the second signal is a low signal ~~in response to at least one of the plurality of sensors detecting a speckle~~.

45. (currently amended) The device of claim 34, wherein ~~further comprising means for generating at least one of~~ the second signal is a high signal and the first signal is a low signal ~~in response to at least some of the plurality of sensors detecting the absence of a speckle~~.

46. (currently amended) The device of claim 34, wherein the processor is further configured to detect leading edges of the plurality of first and second signals generated by the plurality of light sensors~~further comprising means for generating at least one of a high signal and a low signal in response to at least some of the plurality of sensors detecting the leading edge of a speckle~~.

47. (currently amended) The device of claim 34, wherein the processor is further configured to detect trailing edges of the plurality of first and second signals generated by the plurality of light sensors ~~further comprising means for generating at least one of a high signal and a low signal in response to at least some of the plurality of sensors detecting the trailing edge of a speckle~~.

48. (currently amended) The device of claim 34, wherein the first average spatial dimension of the speckles is at least twice that of the second spatial dimension of the sensors.... ~~further comprising means for generating at least one of a high signal and a low signal in response to at least some of the plurality of sensors detecting the end of a first speckle and the beginning of a second speckle~~.

49. (previously presented) The device of claim 34, wherein the device is a mouse.

50. (new) The method of claim 21, wherein the first average spatial dimension of the speckles is at least twice that of the second spatial dimension of the sensors.